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**(54) Food humectant.**

**(57)** Cheese whey permeate is fermented to produce a superior food humectant in a process which includes the preliminary steps of adding a bacteria nutrient yeast extract and diammonium phosphate to maintain the pH at a level of about 5.6, and pasteurizing. The material is then cooled to fermentation temperature, inoculated with a lactic acid producing culture and permitted to ferment to less than about 1% lactose. The fermented mixture is agitated and an alkali such as caustic soda (NaOH) is added to re-adjust the pH to about 5.6, with continued addition to a pH of about 5.8. The product is then pasteurized and evaporated to a concentration of greater than about 60% solids and is ready for packaging.

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sired in the humectant, a solution utilizing ammonium hydroxide ( $\text{NH}_4\text{OH}$ ) in lieu of or in conjunction with the caustic soda ( $\text{NaOH}$ ) set forth above may be utilized. One suitable form of ammonium hydroxide for this purpose is sold by Packerland Foods of Juneau, Wisconsin.

As has been indicated, it is important to maintain the pH at a level between 5.2 and 5.8 during fermentation, with particular care being taken to maintain the pH at a level which does not fall below 5.0 at any point in time. In certain instances, if the fermentation rate drops, it has been shown to be helpful to add ammonium hydroxide to raise the pH and yeast extract to raise the fermentation rate. No agitation is normally necessary nor desired, except when the pH is being adjusted, and initially to mix and otherwise blend the culture into the mass. Agitation should be maintained at a minimum in order to minimize the introduction of air and/or oxygen. Slow agitation is normally preferred.

As indicated hereinabove, the process of the present invention is particularly adapted for the production of lactate-rich humectant materials from cheese whey permeate.

This invention has been described herein in considerable detail in order to comply with the Patent Statutes and to provide those skilled in the art with the information needed to apply the novel principles and to construct and use such specialized components as are required. However, it is to be understood that the invention can be carried out by specifically different equipment and devices, and that various modifications, both as to the equipment details and operating procedures, can be accomplished without departing from the scope of the invention itself.

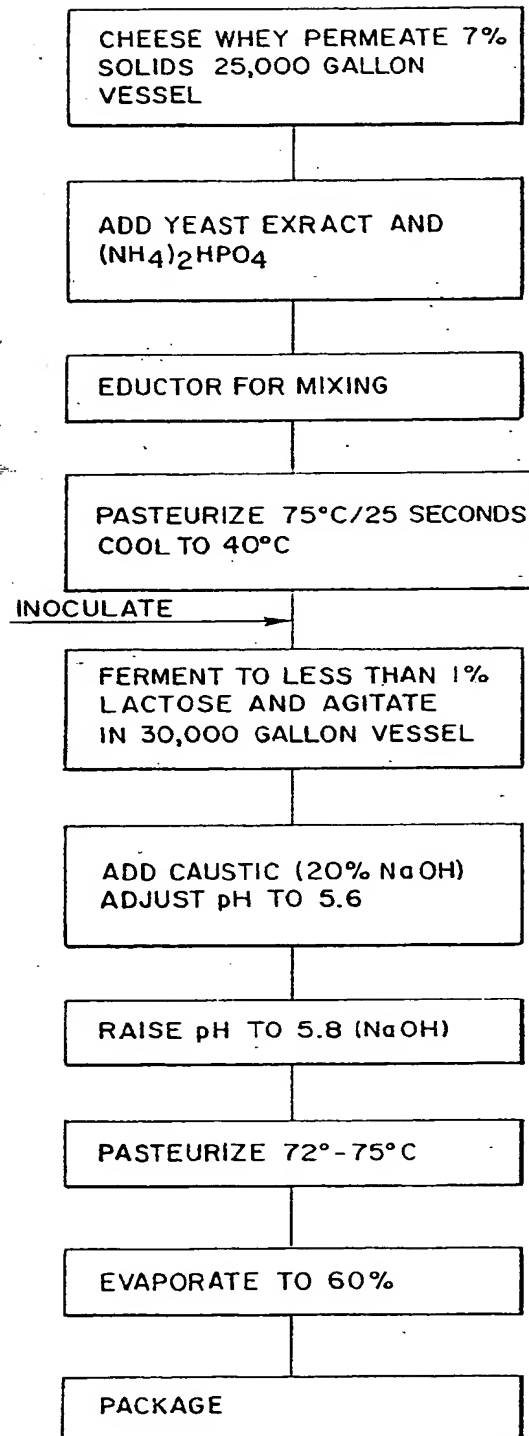
## Claims

1. The method of preparing edible lactate-rich hygroscopic material comprising the steps of:
  - (a) preparing a cheese whey permeate with a solids content of between about 4% and 15%;
  - (b) adding bacteria nutrient yeast extract in an amount of between about 0.2 and 0.3% w/v, and diammonium phosphate in an amount of between about .15% and .25% w/v to adjust pH to about 5.6;
  - (c) pasteurize at a temperature and for a period of time to sterilize the solution and cool to fermenting temperature;
  - (d) inoculate with a lactic acid producing culture, and permit to ferment to a desired lactose composition;
  - (e) agitate and add a compatible basic material to adjust and maintain pH of the fermenting mass to between 5.0 and about 6.2 with continued addition of basic material to the fer-

mented mass to a pH of about 5.8;

- (f) pasteurize at a temperature and for a period of time to resterilize the solution; and
- (g) evaporate to a concentration of about 60% solids.

2. The method of claim 1 wherein the range of solids content of the cheese whey permeate is between about 5% and 10%.
3. The method of claim 1 wherein the compatible base material in step (e) is selected from the group consisting of  $\text{NaOH}$ ,  $\text{KOH}$  and  $\text{NH}_4\text{OH}$ .
4. The method of controlling the moisture content of host food products comprising the step of adding to the host food product an amount of humectant material comprising the product of the fermentation of cheese whey permeate using a lactic acid culture.
5. The method of claim 4 wherein the humectant material is prepared in accordance with the steps of (a) through (g) of claim 1.
6. The method of claim 1 wherein the host food product is a pet food.
7. An humectant material for controlling the moisture content of host food products comprising the product of the fermentation of cheese whey permeate using a lactic acid culture.
8. The humectant material of claim 7 prepared in accordance with the steps of (a) through (g) of claim 1.





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# EUROPEAN SEARCH REPORT

Application Number  
EP 94 30 8857

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claims	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	FR-A-2 674 865 (SOCIETE ANGEVINE DE BIOTECHNOLOGIE BIOPROX) * page 2, line 32 - line 34 * * page 3, line 22 - page 4, line 5 * * page 4, line 25 - line 29 *	1	A23C21/02 A23K1/08 A23K1/18
A	---	2,3	
D,Y	US-A-4 771 001 (RICHARD B. BAILEY ET AL.) * column 3, line 5 - line 7 *	1	
Y	US-A-3 497 359 (HERBERT R. PEER) * column 4, line 39 - line 43 *	1	
Y	US-A-4 324 811 (SUSAN L. EUGLEY) * column 6, line 61 - column 7, line 20 * * column 10, line 37 - line 55 * * examples 1-7 * * claims 1-4 *	4,6,7	
Y	DATABASE WPI Week 8351, Derwent Publications Ltd., London, GB; AN 83-847156 & JP-A-58 192 811 (YAKULT HONSHA KK) 10 November 1983 * abstract *	4,6,7	TECHNICAL FIELDS SEARCHED (Int.Cl.6)  A23C A23K
A	DATABASE WPI Week 9045, Derwent Publications Ltd., London, GB; AN 90-337273 & HU-A-52 919 (MAGYAR TEJGAZDASAGI) 28 September 1990 * abstract *	1	
A	WO-A-87 06432 (COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION) * page 5, paragraph 5 * --- -/--	4,6,7	
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>9 March 1995</b>	Examiner <b>Dekeirel, M</b>
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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A.	US-A-5 130 249 (ROBERT S. HARDIN ET AL.) * column 1, line 16 - line 19 * * column 2, line 1 - line 3 * ---	4,7	
A	'PROCEEDINGS, 1984 WHEY PRODUCTS CONFERENCE HELD AT CHICAGO, ILLINOIS, OCTOBER 25-26, 1984' 1984, PHILADELPHIA, PENNSYLVANIA, USA * page 83, paragraph 2 - page 84, paragraph 2 * * page 84; figure 7 * -----	4,6,7	
			TECHNICAL FIELDS SEARCHED (Int. CL.6)
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<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>A : member of the same patent family, corresponding document</p>			

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